NASA Policy Directive

NPD 8820.2C
Effective Date: June 13, 2006
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COMPLIANCE IS MANDATORY

Printable Format (PDF)

Subject: Design and Construction of Facilities

Responsible Office: Facilities Engineering and Real Property Division

1. POLICY

a. NASA will retain only those assets required to conduct NASA programs, maintain the Agency's core capabilities, and meet national responsibilities.

b. NASA will purchase, construct, and/or operate new real property only when existing capabilities (including those owned by NASA and other external entities) cannot be used or modified cost-effectively.

c. When new construction is needed, facilities built and operated to support NASA's mission shall be planned, budgeted, designed, and constructed in compliance with current Federal laws and regulations.

d. Industry-best practices of sustainable design, maintainable design, building commissioning, and safety and security shall be incorporated, to the maximum extent possible, into the planning and execution of facility projects. The use of these practices ensures that facility projects are delivered with the most economical life-cycle cost, least environmental impact, and maximum benefits in occupant's health, safety, security and productivity.

e. Design and construction activities shall ensure that project decisions include appropriate features to safeguard the health and welfare of facility visitors, occupants, and equipment against internal hazards or external dangers.

2. APPLICABILITY

This NPD is applicable to NASA Headquarters and NASA Centers, including Component Facilities, and contractor facilities where specified by contract. Additionally, this NPD also applies to non-NASA-owned facilities constructed on NASA real estate, unless waivers have been obtained from Headquarters' Facilities Engineering and Real Property Division.

3. AUTHORITY

a. 42 U.S.C. 2473(c)(1), National Aeronautics and Space Act of 1958, as amended.

b. 16 U.S.C. 470, Historic Preservation Act of 1994, as amended.

c. 29 U.S.C. 701, The Rehabilitation Act of 1973, as amended.

d. 42 U.S.C. 4151, The Architectural Barriers Act of 1968, as amended.

e. 42 U.S.C. 8201, National Energy Conservation Policy Act, as amended.

f. 42 U.S.C. 6201, Energy Conservation Act, as amended.

g. 42 U.S.C. 12101, The Americans with Disabilities Act, as amended.

h. 42 U.S.C. 4321, National Environmental Policy Act, as amended.

i. 10 CFR Part 434, Energy Code for New Federal Commercial and Multi- Family High Rise Residential Buildings.

j. 10 CFR Part 436, Federal Energy Management and Planning Programs.

k. 29 CFR Part 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters.

l. 36 CFR Part 800, Protection of Historic Properties.

m. 48 CFR Part 36, Construction and Architect-Engineer Contracts.

n. 48 CFR Part 1836, NASA FAR Supplement, Construction and Architect- Engineering Contracts.

o. 48 CFR, Part 23, Energy Conservation.

p. EO 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition, dated September 14, 1988.

q. EO 13123, Greening the Government Through Efficient Energy Management, dated June 3, 1999.

r. EO 13148, Greening the Government Through Leadership in Environmental Management, dated, April 21,2000.

s. EO 13287, Preserve America, dated March 3, 2003.

t. EO 13327, Federal Real Property Asset Management, dated February 4, 2004.

u. OMB Circular No. A-11, Part 7: Planning, Budgeting, Acquisition, and Management of Capital Assets.

v. OMB Circular No. A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs.

4. REFERENCES

a. NPD 1600.2, NASA Security Policy.

b. NPD 7330.1, Approval Authorities for Facility Projects.

c. NPD 8710.2, NASA Safety, Health, and Environmental Program.

d. NPD 8800.14, Policy for Real Property Management.

e. NPD 8831.1 Maintenance of Institutional and Program Facilities and Related. Equipment.

f. NPR 1600.1, NASA Security Program Procedural Requirements.

g. NPR 1620.2, Physical Security Vulnerability Risk Assessments.

h. NPR 1620.3, Physical Security Requirements for NASA Facilities and Property.

i. NPR 7120.5, NASA Program and Project Management Processes and Requirements.

j. NPR 7123.1 NASA Systems Engineering Process and Requirements.

k. NPR 8580.1, Implementing The National Environmental Policy Act and Executive Order 12114.

l. NPR 8570.1, Energy Efficiency and Water Conservation.

m. NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping.

n. NPR 8715.1, NASA Occupational Safety and Health Programs.

o. NPR 8715.3, NASA Safety Manual.

p. NPR 8820.2, Facility Project Implementation Guide.

q. NPR 8831.2, Facilities Maintenance Management.Equipment.

r. NPR 8850.1, Environmental Investigation and Remediation - Potentially Responsible Party Identification and Analysis.

s. NASA Financial Management Manual, Volume 9100, Agencywide Coding Structure (www.hq.nasa.gov/fmm/9200/9220.pdf)

t. NASA-STD-8710.7, Facility System Safety Guidebook.

u. Leadership in Energy and Environmental Design, U.S. Green Building Council. (www.usgbc.org)

v. Energy Star, Environmental Protection Agency. (www.energystar.gov)

w. Laboratories for the 21st Century (Labs21), the U.S. Environmental Protection Agency and the U.S. Department of Energy. (www.labs21century.gov)

5. RESPONSIBILITY

The Assistant Administrator (AA) for Infrastructure and Administration is responsible for formulation and maintenance of this policy, and delegates these responsibilities to the Director of the Facilities Engineering and Real Property (FERP) Division.

a. The Director of the Facilities Engineering and Real Property Division, is the Agency's functional leader and authority for the breadth of NASA facility engineering programs, including master planning, design, construction, acquisition/leasing, maintenance, utilization, and disposal. This authority applies to all real property assets, including land, buildings, structures, technical facilities, and utility systems.

b. The Director serves in an advisory capacity to the Administrator and works in partnership with the Mission Directorates and the Centers to ensure that Agency facility engineering design and construction activities support the accomplishment of NASA missions, are conducted in accordance with all statutory, regulatory, and fiduciary requirements, and are in accordance with Agency strategic goals.

c. The Director is also responsible for developing and facilitating adoption of facility sustainable design policies, procedures, and regulations.

The Director shall:

1) Designate a Sustainable Design Champion to advance sustainable design initiatives Agencywide (including policy, guidance, and training), and to annually report progress toward implementing sustainable design principles on NASA facilities projects.

2) Recommend an appropriate Leadership in Environmental and Energy Design (LEED) goal for NASA facilities projects. This goal shall be reviewed, renewed, or changed every three years.

3) Provide technical leadership for training courses to facilitate the rapid and successful implementation of sustainable design principles throughout the Agency.

4) Advocate the appropriate commitment of resources to successfully implement sustainable design objectives.

5) Coordinate within NASA, e.g., Environmental Management Division, Safety and Assurance Requirements Division, and other internal or external organizations, as appropriate, on policies, guidance development, and implementation on sustainable design issues.

6) Provide leadership and facilitate the adoption of construction safety best practices on NASA facility projects.

d. The NASA Chief Financial Officer, or designee, is responsible for ensuring that budget planning, advocacy, development, allocations, and proper accounting procedures are in place prior to acquisition of design and construction of facilities.

e. NASA Program/Project Managers are responsible for developing Business Case Analyses of Project Infrastructure and gaining approval of business case by cognizant Mission Directorate AA and by the cognizant Headquarters Mission Support Office AA or designee.

f. The Mission Directorates are responsible for validating facility requirements, planning, budgeting, and resource allocation for all new programmatic facility projects. The Mission Directorates are also responsible for developing requirements for program-specific construction of facilities in coordination with the appropriate Centers.

g. NASA Centers are responsible for providing institutional and programmatic facility support, as set forth in NPR 8820, to Mission Directorates in the development, planning, budgeting, design, and construction of facility-related projects.

h. Directors of NASA Centers are responsible for, and may delegate to the appropriate level of the organization, the following:

1) Designating a Sustainable Design Champion to:

i. Coordinate with Headquarters and other Center Sustainable Design Champions to ensure appropriate application of sustainable design principles on appropriate Center facilities projects.

ii. Ensure that life-cycle cost analyses are used when evaluating sustainable design elements to include in facility projects, and for all appropriate projects, rate the level of sustainable design, using the LEED Green Building Rating System.

iii. Ensure that appropriate personnel obtain required training to implement sustainable design concepts on appropriate facility projects.

iv. Conduct, at specified intervals, assessment of Center progress toward achieving sustainable design goals and objectives.

2) Ensure that the Center facilities programs are in accordance with this policy as well as Center-approved Master Plans and Agency strategic direction.

3) Ensure that Center Safety and Mission Assurance (S&MA) and Environmental Offices are included in the design process at the beginning of project planning/design. S&MA and Environmental Offices shall monitor the construction process for safety.

4) Ensure that personnel responsible for design and construction projects are appropriately trained in Project Management and Construction Safety.

5) Ensure that processes in NPR 7123.1 are used to develop and execute flight project facility requirements that meet the specific program or projects requirements.

6) Ensure that incidents of fraud and/or nonconformance to specifications or contractual requirements are referred to the Office of Inspector General.

6. DELEGATION OF AUTHORITY

Directors of NASA Centers may delegate the responsibilities detailed to them in paragraph h.

7. MEASUREMENTS

Performance assessment of the design and construction process will be accomplished through annual self-assessment reports from each Center. Centers shall submit assessment reports to the Director, Facilities Engineering and Real Property Division by December 31 of each year. The report shall include metrics, as outlined in NPR 8820.2, Facility Project Implementation Guide, relating to the scope, schedule, budget, and quality of design and construction services rendered during the previous fiscal year.

8. CANCELLATION

NPD 8820.3, Facility Sustainable Design, August 21, 2002. NPD 8820.2, Design and Construction of Facilities, December 2, 1998.

/s/ Frederick D. Gregory
Acting Administrator

ATTACHMENT A: (TEXT)

Definitions:

Assets - Assets in this document refer to real property, including land, buildings, facilities, roads, and utility systems.

Commissioning - A quality process emphasizing procedures to ensure that systems are designed, installed, functionally tested, and capable of being operated and maintained to perform in conformity with the owner's project requirements.

Design - Planning, developing and conveying the details into plans and specifications to satisfy the desired project scope and objectives. This encompasses both the preliminary design and final design for facility projects. It also includes providing cost estimates for the planned project at each design review stage.

Construction - An alteration or repair (including dredging, excavating, and painting) of buildings, structures, or other real property. For purposes of this definition, the terms buildings, structures, or other real property include but are not limited to improvements of all types such as bridges, dams, plants, highways, parkways, streets, subways,

tunnels, sewers, mains, power lines, cemeteries, pumping stations, railways, airport facilities, terminals, docks, piers, wharfs, ways, light- houses, buoys, jetties, breakwaters, levees, canals, and channels. Construction does not include the manufacture, production furnishing, construction, alteration, repair, processing or assembling of vessels, aircraft, and other kinds of personal property.

Facility - Land, buildings, structures, and other real property improvements including utility systems and collateral equipment. The term does not include operating materials, supplies, special tooling, special test equipment, and noncapitalized equipment. The term facility is used in connection with land, buildings (facilities having the basic function to enclose usable space), structures (facilities having the basic function of a research or operational activity), and other real property improvements.

Life-Cycle cost -A procedure for determining the long term economic impact of a decision that encompasses all program costs associated with a facility including costs of planning, design, construction, operation, maintenance, salvage, or residual value at the end of the intended period of use.

Maintainable Design - A practice that emphasizes the integration of operations and maintenance experience and principles into project planning, design and construction processes to achieve ease, accuracy, safety, and economy of maintenance tasks throughout the life of a facility.

Master planning - An analytical process undertaken to evaluate the numerous factors that affect a NASA Center and insure that the future real property development of the Center effectively and efficiently supports the missions carried out and supported by the Center. The product of this analytical process is a Center Master Plan (CMP), which establishes the Center's concept for the future.

Sustainability - An overarching concept incorporating appropriate sustainable design practices, maintainable design elements, building commissioning processes, and safety and security features into facility planning, design, construction, activation, operation and maintenance, and decommissioning to enhance and balance facility life-cycle cost, environmental impact, and occupant health, safety, security, and productivity. Done properly, sustainability will optimize the facility acquisition process to ensure the ?best fit? of the built environment to the natural environment. It requires a practical and balanced approach to responsible stewardship of our natural, human and financial resources.

Sustainable Design - A practice that involves planning, designing, constructing, activating and operating buildings to reduce the negative impact on the environment, minimize energy consumption, and promote the productivity, health and comfort of building occupants.

(URL for Graphic)

None.

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